IN THE CLAIMS

Please cancel claims 2, 5, 8, 9, 18, 19, 24, 27, 30 and 31, without prejudice or disclaimer, amend claims 1, 3, 4, 6 thru 10, 12 thru 23, 25, 26 and 28 thru 34, and add claims 35 thru 46, as follows:

1. (Currently Once Amended) A cathode for an electron tube, comprising:

a metal base; and

an electron-emitting material layer coated on the metal base, said electron-emitting material layer comprising a needle-shaped conductive material;

said needle-shaped conductive material being at least one material selected from a group consisting essentially of carbon, indium tin oxide, nickel, magnesium, rhenium, molybdenum and platinum.

Claim 2. (Canceled)

3. (Currently Once Amended) The cathode of claim 1, ~~further comprised of~~ said needle-shaped conductive material being a carbonaceous material.

4. (Currently Once Amended) [[The]] A cathode ~~of claim 3, further comprised of~~ for an electron tube, comprising:

a metal base; and

an electron-emitting material layer coated on the metal base, said electron-emitting material layer comprising a needle-shaped conductive material;

said needle-shaped conductive material being a carbonaceous material [[being]] selected from the group consisting essentially of a carbon nanotube, carbon fiber and graphite fiber.

5. (Currently Once Amended) The cathode of claim 3, ~~further comprised of~~ said carbonaceous material being a carbon nanotube.

6. (Currently Once Amended) [[The]] A cathode ~~of claim 1, further comprised of~~ for an electron tube, comprising:

a metal base; and

an electron-emitting material layer coated on the metal base, said electron-emitting material layer comprising a needle-shaped conductive material;

said needle-shaped conductive material in the electron-emitting material layer being in [[the]] a range of 0.01 to 30% by weight based on [[the]] a total weight of said electron-emitting material.

7. (Currently Once Amended) The cathode of claim 1, ~~further comprised of~~ said needle-shaped conductive material being a carbonaceous material, said needle-shaped conductive material being in [[the]] a range of 0.01 to 30% by weight based on [[the]] a

total weight of said electron-emitting material layer, and [[the]] a thickness of said electron-emitting material layer being in [[the]] a range of 30 to 80 μm.

Claims 8 and 9. (Canceled)

10. (Currently Once Amended) A cathode for an electron tube, comprising:

a metal base; and

an electron-emitting material layer coated on the metal base, said electron-emitting material layer comprising a needle-shaped conductive material and having a surface roughness corresponding to a distance between [[the]] a highest point and [[the]] a lowest point on [[the]] a surface of the electron-emitting material layer being less than 10 microns.

11. (Original) The cathode of claim 10, wherein said cathode is an oxide cathode.

12. (Currently Once Amended) The cathode of claim [[11]] 10, ~~further comprised of~~ said needle-shaped conductive material being at least one material selected from the group consisting essentially of carbon, indium tin oxide, nickel, magnesium, rhenium, molybdenum and platinum.

13. (Currently Once Amended) The cathode of claim [[11]] 10, ~~further comprised~~

~~of~~ said needle-shaped conductive material being a carbonaceous material.

14. (Currently Once Amended) The cathode of claim 13, ~~further comprised of~~ said carbonaceous material being selected from the group consisting essentially of a carbon nanotube, carbon fiber and graphite fiber.

15. (Currently Once Amended) The cathode of claim 13, ~~further comprised of~~ said carbonaceous material being a carbon nanotube.

16. (Currently Once Amended) The cathode of claim [[11]] 10, ~~further comprised~~ ~~of~~ said needle-shaped conductive material in the electron-emitting material layer being in [[the]] a range of 0.01 to 30% by weight based on [[the]] a total weight of said electron-emitting material.

17. (Currently Once Amended) The cathode of claim [[11]] 10, ~~further comprised~~ ~~of~~ said needle-shaped conductive material being a carbonaceous material, said needle-shaped conductive material being in [[the]] a range of 0.01 to 30% by weight based on [[the]] a total weight of said electron-emitting material layer, and the thickness of said electron-emitting material layer being in [[the]] a range of 30 to 80 μm.

Claims 18 and 19. (Canceled)

20. (Currently Once Amended) The cathode of claim 11, further comprising a metal layer including nickel grains having sizes smaller than [[the]] sizes of grains in said metal base, said metal layer being formed between said metal base and said electron-emitting material layer.

21. (Currently Once Amended) The cathode of claim 20, ~~further comprised of~~ said metal layer further including at least one metal selected from the group consisting essentially of aluminum (Al), tungsten (W), tantalum (Ta), chromium (Cr), magnesium (Mg), silicon (Si) and zirconium (Zr).

22. (Currently Once Amended) The cathode of claim 20, ~~further comprised of the~~ a thickness of said metal layer being in [[the]] a range of 1 to 30 μm.

23. (Currently Once Amended) An oxide cathode for an electron tube, comprising:

a metal base; and

an electron-emitting material layer coated on the metal base, said electron-emitting material layer comprising a needle-shaped conductive material;

said needle-shaped conductive material being at least one material selected from a group consisting essentially of carbon, indium tin oxide, nickel, magnesium, rhenium,

molybdenum and platinum

Claim 24. (Canceled)

25. (Currently Once Amended) The cathode of claim 23, ~~further comprised of~~ said needle-shaped conductive material being a carbonaceous material.

26. (Currently Once Amended) [[The]] An oxide cathode ~~of claim 25, further comprised of~~ for an electron tube, comprising:

a metal base; and

an electron-emitting material layer coated on the metal base, said electron-emitting material layer comprising a needle-shaped conductive material;

said carbonaceous material being selected from [[the]] a group consisting essentially of a carbon nanotube, carbon fiber and graphite fiber.

27. (Currently Once Amended) The cathode of claim 25, ~~further comprised of~~ said carbonaceous material being a carbon nanotube.

28. (Currently Once Amended) [[The]] An oxide cathode ~~of claim 23, further comprised of~~ for an electron tube, comprising:

a metal base; and

an electron-emitting material layer coated on the metal base, said electron-emitting material layer comprising a needle-shaped conductive material;

said needle-shaped conductive material in the electron-emitting material layer being in [[the]] a range of 0.01 to 30% by weight based on [[the]] a total weight of said electron-emitting material.

29. (Currently Once Amended) The cathode of claim 23, ~~further comprised of~~ said needle-shaped conductive material being a carbonaceous material, said needle-shaped conductive material being in [[the]] a range of 0.01 to 30% by weight based on [[the]] a total weight of said electron-emitting material layer, and [[the]] a thickness of said electron-emitting material layer being in [[the]] a range of 30 to 80 μm.

Claims 30 and 31. (Canceled)

32. (Currently Once Amended) The cathode of claim 23, further comprising a metal layer including nickel grains having sizes smaller than [[the]] sizes of grains in said metal base, said metal layer being formed between said metal base and said electron-emitting material layer.

33. (Currently Once Amended) The cathode of claim 32, ~~further comprised of~~ said metal layer further including at least one metal selected from the group consisting

essentially of aluminum (Al), tungsten (W), tantalum (Ta), chromium (Cr), magnesium (Mg), silicon (Si) and zirconium (Zr) .

34. (Currently Once Amended) The cathode of claim 32, ~~further comprised of the~~ a thickness of said metal layer being in [[the]] a range of 1 to 30μm.

35. (New) A method of preparing a cathode for an electron tube, comprising the steps of:

providing a metal base;

preparing a carbonate paste containing needle-shaped conductive material; and

coating the carbonate paste containing the needle-shaped conductive material onto the metal base, and then drying to form an electron-emitting layer of the cathode.

36. (New) The method of claim 35, wherein the coating step includes applying pressure on a coating layer in order to attain a desired level of surface roughness.

37. (New) The method of claim 36, wherein the step of applying the pressure on the coating layer comprises at least one of printing, electrodeposition and painting.

38. (New) The method of claim 37, wherein the printing includes at least one of screen printing and roll coating.

39. (New) The method of claim 35, wherein the coating step comprises coating to a thickness in a range of 30 to 80 microns so as to obtain good electron emission characteristics.

40. (New) The method of claim 35, said needle-shaped conductive material in the electron-emitting material layer being in a range of 0.01 to 30% by weight based on a total weight of said electron-emitting material.

41. (New) The method of claim 35, further comprising the step, between the providing step and the coating step, of forming a metal layer on the metal base.

42. (New) The method of claim 41, wherein the metal layer comprises nickel and a refractory metal to reinforce mechanical strength of the cathode.

43. (New) The method of claim 41, further comprising the step, prior to forming the metal layer on the metal base, of mixing nickel powder and at least one of tungsten and aluminum as a reducing agent to prepare a metal layer material.

44. (New) The method of claim 43, further comprising the step, after the mixing step, of homogeneously mixing the metal layer material with an organic binder and a

liquid-phase organic solvent to prepare a paste which, when deposited on the metal base, forms the metal layer on the metal base.

45. (New) The method of claim 41, wherein the forming step comprises applying metal layer material to the metal base, and then thermally treating the applied metal layer material in one of a vacuum and an inert gas atmosphere to obtain the metal layer without organic matter.

46. (New) The method of claim 41, wherein the forming step comprises one of printing, spraying, electrodeposition and painting.

47. (New) A cathode prepared by the method of claim 35.